Factoring Polynomials

1) Look for a greatest common factor first. Put it outside parentheses.

18r2s3 + 12r4s

6r2s(3s2 + 2r2)

-24pr5 - 56p3

-8p(3r5 + 7p2) 2) If there are 2 terms, look for a difference of 2 squares or a sum/difference of 2 cubes: 16k2 - 1 difference of 2 squares, plus minus pattern(+)(-)(4k+1)(4k-1) 27-y3 difference of 2 cubes, binomial has a minus, trinomial h plusses(3 - y)(9 + 3y + y2) a3 + b3 sum of 2 cubes, binomial has a plus, trinomial has minus and plus(a + b)(a2 - ab + b2 3) If there are 3 terms, try two sets of parentheses. Decide on the signs: ++, - - , or + -. Will the middle term be a sum(if the signs are the same) or a difference (if the signs are different)? Then put in the variables, numbers, and check it with FOIL. 8x2 + 14x + 3 x2 - 12x + 36 x2 - 2x - 15(+)(+) (-)(-) your factoring by multiplying out the factors using FOIL. If you factored correctly, you should end up with what you started with. 4) If there are 4 or more terms, try grouping: ab - 2 - 2b + a u(v - 1) - 2(1 -v) [factor 2 u(v - 1) +2(v - 1) [(-2)(-1)= +2]a(b + 1) -2(b + 1) (v - 1)(u + 2)(b + 1)(a - minuses are inside parentheses. Check to make sure that each factor is prime. If a factor occurs more than once, write it once with an exponent.

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